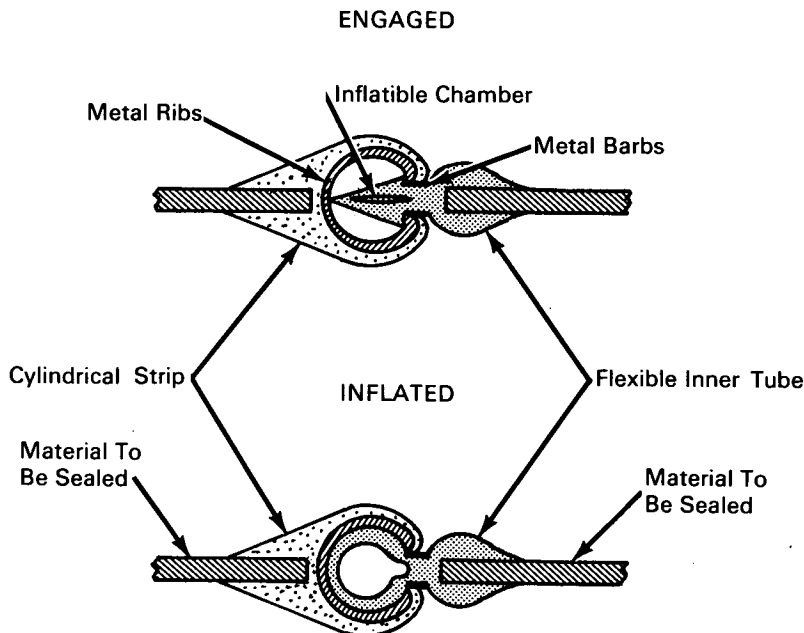


NASA TECH BRIEF



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Flexible Fastener Effects Airtight Material Closure



The problem:

To design a flexible fastener that can be quickly joined or separated and that will prevent the passage of fluids.

The solution:

A flexible, flat, preformed, inflatable tube that can be inserted into a flexible, 3/4-round strip receptacle. The tube is attached to one side of the material and the receptacle to the other side to form the closure. When the tube is inserted into the receptacle and inflated, the fluidtight closure is accomplished.

How it's done:

The 3/4-round strip receptacle of plastic or rubber

is reinforced with metal ribs and has its open side facing directly away from the material to which it is attached. The inflatable tube portion, opposite the material to which it is attached, is arrow shaped for easy insertion into the receptacle, and has metal plates along its base to assist retention after insertion.

The inflatable tube is inserted into the receptacle by pressing in either end and then working it in gradually along its length. After insertion, the tube is inflated through a releasable check valve from some pressure source. To break the closure, the check valve is opened to release the pressure, the metal plates at either end of the inflatable tube are gripped and compressed, and the tube is easily stripped from the receptacle.

(continued overleaf)

Notes:

1. One means of inflating and deflating the tube would be a CO₂ cartridge with a pull ring valve at one end of the tube and a manually operated release valve at the other.
2. Potential applications include space suits, underwater suits, contamination protective outfits, tents, doors, balloons, dirigibles, masks, pool covers, etc.

3. This development is in conceptual stage only, and as of date of publication of this Tech Brief, neither a model nor a prototype has been constructed.

Patent status:

No patent action is contemplated by NASA.

Source: Daniel L. Nay
(JPL-684)